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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,973	11/21/2003	Jacob Lahijani	FLO21-USNA	3574
23906 7590 10/05/2009 E I DU PONT DE NEMOURS AND COMPANY LEGAL PATENT RECORDS CENTER BARLEY MILL PLAZA 25/1122B 4417 LANCASTER PIKE WILMINGTON, DE 19805				
EXAMINER VETTER, ROBERT A				
ART UNIT		PAPER NUMBER		
1792				
NOTIFICATION DATE		DELIVERY MODE		
10/05/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-Legal.PRC@usa.dupont.com

Office Action Summary

Application No.

10/719,973

Applicant(s)

LAHIJANI, JACOB

Examiner

ROBERT VETERE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6,8,9 and 12-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6,8,9 and 12-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/5508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/9/2009 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 6, 12, 14-15, 17-18 and 19-27 rejected under 35 U.S.C. 103(a) as being unpatentable over Kazumi (JP 02-904593) in light of Buckmaster (US 4,714,756, hereinafter "Buckmaster '756").

Claims 6, 19-23 and 26-27: Kazumi teaches a method of rotolining the interior of a hollow article comprising:

adding a composition consisting essentially of tetrafluoroethylene/perfluoro(alkyl vinyl ether) copolymer ("PFA") (¶ 0016) and non-bubble promoting (¶ 0007) metal powder (¶¶ 0016-0017) to the interior of said article;

rotating said article to distribute the composition over said interior surface (¶ 0015);

heating said article to melt the copolymer particles and then cooling said article (¶ 0020).

What Kazumi does not teach is that the PFA is fluorine treatment stabilized. Buckmaster '756 teaches a method of preparing melt-processible tetrafluoroethylene perfluoro (alkyl vinyl ether) copolymer (abst.) to be used in rotomolding applications to make linings (Col. 1: 12-15). Buckmaster '756 further teaches that this PFA copolymer is treated with fluorine to stabilize the copolymer to reducing bubbling of the PFA during heat-processing (2: 33-38). This is desirable because stabilized PFA

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copolymers are easier to handle in conventional melt-fabrication processes (1:34-40). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the fluorine stabilized PFA of Buckmaster '756 in the method of Kazumi in order to have provided a PFA which is easier to handle in the rotolining process of Kazumi.

Kazumi also discloses that the metal powder constitutes 0.1 to 30 wt% of said composition. With respect to applicant's limitation of 0.3 to 1.2 wt%, in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 191 USPQ 90 (CCPA 1976). Furthermore, Kazumi teaches that the exact percentage used can affect the metal powders usefulness in preventing bubbling and it has been held that "where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 105 USPQ 233, 235 (CCPA 1955). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected and/or optimized the wt% of metal powder used, as taught by Kazumi, in order to have increased the metal powder's usefulness in preventing bubbling of the PFA.

Kazumi and Buckmaster '756 fail to explicitly teach that the stabilized PFA with metal powder promotes adhesion and that said adhesion is characterized by a peel strength of at least about 25 lb/in. However, while these references do not explicitly teach this limitation, the types of additives disclosed by Kazumi are the same as the additives used by applicant and are used in the same proportion as recommended by applicant (see ¶¶ 0016, 0018 and pp. 4-5 of Applicant's specification). Furthermore, Kazumi does explicitly disclose the desire to create a lining that adheres to the inner surface of target to be coated (see ¶¶ 0003 and 0005).

With respect to the limitation that the copolymer is bubble-free when subjected to said rotolining by itself, it is inherent that the fluorinated copolymer of Kazumi and Buckmaster meets this limitation because this combination of references teaches the same copolymer as that which is claimed by applicant.

Claims 12 and 14: Kazumi also teaches that the metal powder is zinc and/or contains copper (¶ 0016).

Claim 15: Kazumi also teaches that the metal powder is, for example, zinc or a fine powder containing copper (see ¶ 0016). It does not teach that the additive is a combination of metals. However, "it is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." *In Re Kerkhoven*, 205 USPQ 1069, 1072 (CCPA 1980). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a combination of metals (including brass, which is a combination of copper and zinc) as the additive powder in Kazumi.

Claims 17-18: Buckmaster '756 also teaches that the stabilized PFA has less than 80 unstable end groups per 10^8 carbon atoms in the polymer and that the unstable end groups are, for example, COOH , $\text{-CH}_2\text{OH}$, and -CF=CF_2 (4:21-45).

Claims 24-25: Kazumi teaches all the limitations of claims 24 and 25 in light of Buckmaster '756, as discussed above, but does not teach that the copolymer used is tetrafluoroethylene/perfluoro(methyl vinyl ether)/perfluoro(propyl vinyl ether) ("TFE/PMVE/PPVE") rather than PFA. Buckmaster '756, on the other hand teaches that perfluoro(methyl vinyl ether) and perfluoro(propyl vinyl ether) are known copolymers with tetrafluoroethylene that can be used in melt-processible copolymer compositions (2:49-53). Furthermore, the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 65 USPQ 297 (1945). Buckmaster also teaches that the copolymer has stable $\text{-CF}_2\text{H}$ endgroups (4:21-45; 2:33-38). Thus, it would have been obvious to one of ordinary skill in the art to have used TFE/PMVE/PPVE in place of PFA in the method of Kazumi and Buckmaster '756 with the predictable expectation of success because PMVE/PPVE are recognized copolymers of TFE known to be suitable for this application.

4. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazumi and Buckmaster in light of Nishio et al. (US 6,287,632) and Rau et al. (US 4,897,439).

Claims 8 and 16: Kazumi and Buckmaster fail to expressly teach that the thickness of an overcoat. Nishio, however, teaches a method of rotolining an article using a fluoropolymer, such as PFA, and a filler (Abst., 1:10-20) to produce a bubble-free lining (2:1-5) wherein an overcoat layer of the same polymer without a filler to applied (2:22-26) to improve durability of the layer (see, e.g., 6:32-48). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied an overcoat layer in order to have improved the durability of the PFA layer in the combined method of Kazumi and Buckmaster.

With respect to claim 16, Buckmaster teaches that that perfluoro(methyl vinyl ether) and perfluoro(propyl vinyl ether) are known copolymers with tetrafluoroethylene that can be used in melt-processible copolymer compositions, as discussed above with respect to claims 24-25.

5. Claims 9 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazumi, Buckmaster and Nishio in light of Rau et al. (US 4,897,439).

Claims 9 and 28-30: Kazumi, Buckmaster and Nishio, however fail to teach a thickness for said overcoat layer. Rau, however, teaches that thicknesses of 0.04 inches and greater are suitable for overcoat layers placed on top of PFA and filler layers (Abst., 15:61-68). The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected an overcoat layer with a thickness of at least 4mm in the combined method of Kazumi, Buckmaster and Nishio with the predictable expectation of success.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kazumi and Buckmaster in light of Saito et al. (US 5,397,831).

Claim 13: Kazumi teaches all the limitations of claim 6 in light of Buckmaster '756, as discussed above. What it does not teach is that the metal powder is tin. Saito, however, teaches that the use of tin as a metal additive is well known in the art of rotolining bubble-free PFA (2:43-56). Furthermore, the

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selection of a known material based on its suitability for its intended use is *prima facie* obvious. *Sinclair & Carroll Co. v. Interchemical Corp.*, 65 USPQ 297 (1945). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a metal powder containing tin in the process of Kazumi because it is recognized as a metal powder which will prevent bubbling of PFA during a rotolining process, as taught by Saito.

Response to Arguments

7. Applicant's arguments filed 7/9/2009 have been fully considered but they are not persuasive.

Applicant's first argument is that the examiner has incorrectly cited KSR. This is not persuasive. The statement to which applicant points with respect to this argument is taken directly from MPEP § 2143.

Applicant next argues that the examiner has failed to provide motivation for the combination of Kazumi and Buckmaster. This is not persuasive. As stated above, Buckmaster teaches that fluorinated PFA is desirable because stabilized PFA copolymers are easier to handle in conventional melt-fabrication processes. Thus, one of ordinary skill in the art would have been motivated to use the fluorine stabilized PFA taught by Buckmaster because it is easier to handle in the rotolining operation of Kazumi.

Applicant also argues that, for inherency, the missing subject matter, adhesion, must be present in Kazumi and also that inherency does not apply to obviousness rejections. This is not persuasive. The express, implicit, and inherent disclosures of a prior art reference may be relied upon in the rejection of claims under 35 U.S.C. 102 or 103. "The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness." *In re Napier*, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995). MPEP § 2112. Furthermore, there is no requirement that a person of ordinary skill in the art would have recognized the inherent disclosure at the time of invention, but only that the subject matter is in fact inherent in the prior art reference. *Schering Corp. v. Geneva Pharm. Inc.*, 339 F.3d 1373, 1377, 67 USPQ2d 1664, 1668 (Fed. Cir. 2003). MPEP § 2112 (II). The combination of Kazumi and Buckmaster teaches all the elements of applicant's invention. Therefore, it is inherent that the method of Kazumi and Buckmaster will provide good adhesion.

Applicant also argues that Kazumi and Buckmaster fail to teach $-CF_2H$ end groups. This is not persuasive. As discussed above, with respect to claims 24 and 25, Buckmaster does teach that the copolymer has these stable end groups.

Applicant also argues that there is no suggestion in Saito that use of tin as an additive will prevent bubbling. This is not persuasive. Saito explicitly states that tin is a known additive for use as a filler in PFA coatings which prevents bubbling (2:43-56).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT VETERE whose telephone number is (571)270-1864. The examiner can normally be reached on Mon-Fri 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert Vetere/
Examiner, Art Unit 1792

/Michael Cleveland/

Supervisory Patent Examiner, Art Unit 1792